

# Work Order ID 53314

October 30, 2009 9:57:04 AM



Page 1

Item ID: D212-664-107

Accept



Setup Start



Revision ID: A

Stop



Item Name: Crosstube Low Standard Fwd

Start Date: 30/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 16/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

*[Signature]*

Date: 09-10-30

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D212-664-147	Rev A
--------------	-------

100

0.00



DC

DOCUMENT CONTROL

Memo

Document Control

Photocopy bluefile and create labels as per PPP D212-664-107 CHG001

*Sortalig*

*HJ for BG 09/11/18*

110

0.00



Packaging

Packaging

Memo

Packaging

*9/11/18* *SLP*

120

0.00



CNC Bend 2

BENDING MACHINE - CROSSTUBES

Memo

CNC Alpha 160 Bender.

Bend tube as per Dwg D212-664-107 using CNC bender program 212-107

*(IX) MB 09-11-03*

**Work Order ID 53314**

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Item ID: D212-664-107

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Start Date: 30/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 16/11/2009 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_

Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130



QC

Quality Control

QC15- Crosstube Dimensional Check

0.00

2) 8 or 10/03

0.00



Memo

140



Crosstubes

Crosstubes

Crosstubes

0.00

0.00

Memo

1-Cut tube as per inspection dwg. \*\*\*ensure saw is square\*\*\*

2-Drill pilot holes in tube as per Dwg D212-664-147

3-Drill Rivet holes as per Dwg D212-664-147 using DT8972.

4-Ream hole to finish size in tube as per Dwg D212-664-147

5-Deburr &amp; Inspect for surface damage. Repair damage within limits as per Dwg D212-664-147

DP  
9-11-4

- AWM 9-11-09

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Item ID: D212-664-107

Revision ID: A

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Required Date: 16/11/2009 Req'd Qty: 1.00

Reference:

Accept



Setup Start



Stop



Cust Item ID:

Customer:

Run Start



Stop



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

150



HandFXtube

Crosstubes Chemical Conversion

0.00

Memo

0.00

Hand Finishing Crosstubes

/ - - ALM 9-11-04

160



QC

QC3- Inspect Part Finish

0.00

Memo

0.00

Quality Control

2) 8 out of 4

(4) 0

170



QC

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

Quality Control

2) 8 out of 4

(4) 0

**Work Order ID 53314**

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Item ID: D212-664-107

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Cust Item ID:

Required Date: 16/11/2009 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 	Outsource process - NDT per QSI038 4.1	0.00							
Outsource2	Memo	0.00							
Outsource process - NDT	Liquid Penetrant Inspection as per QSI 038Or Issue P/O <u>10740</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								
190 	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	Ensure copy of NDT results attached to work order.								
200 	QC5- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control	Inspect for damage & ensure results are as per Dwg D212-664-107								

CL  
R09-11-5

Pc 9/11/05 @

MA 09 11 09 (V)

**Work Order ID 53314**

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Item ID: D212-664-107

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Cust Item ID:

Required Date: 16/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

210



Crosstubes

Crosstubes

0.00

Memo

0.00

1-Rivet Cuffs as per Dwg D212-664-147. with Sika flex in Between tube & Cuff  
A/R SIKAFLEX -241/-291 BATCH: 112391

<u>ml</u>	<u>02</u>	<u>11</u>	<u>16</u>	<u>(1)</u>
-----------	-----------	-----------	-----------	------------

220



SprayPaint

SprayPaint

0.00

Memo

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 9:30  
Finish Time: 10:30

PAINT:

Start Time: 8:00  
Finish Time: 4:30

<u>ml</u>	<u>02</u>	<u>11</u>	<u>16</u>	<u>(1)</u>
-----------	-----------	-----------	-----------	------------

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Item ID: D212-664-107

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Stop



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Cust Item ID:

Required Date: 16/11/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230 	QC14- Inspect Spray Paint	0.00							
QC Quality Control	Memo Wrap in plastic bag to protect from scratches	0.00					09	11	17 ①
240 	Crosstubes	0.00							
Crosstubes Crosstubes	Memo 1- Assemble as per Dwg D212-664-147  2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe  3- Instal support with magnobond 6398 per dwg D212-664-147, cure for 12hrs before packaging.  Time & date of application: 09/11/17 100 Batch: 112417 EXP. DATE 01/2011  Torque: ml 09-11-18	0.00					09	11	17 ①

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Item ID: D212-664-107

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Setup Start



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Stop



Item Name: Crosstube Low Standard Fwd

Start Date: 30/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 16/11/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

250

QC5- Inspect part completeness to step on W/O

0.00

278 02/11/10



QC

Memo

0.00

Quality Control



d

260

QC4- 100% Inspect kits for completeness

0.00

278 02/11/10



QC

Memo

0.00

Quality Control



d

270

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D212-664-107

12/11/10

278 02/11/10

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Cust Item ID:

Required Date: 16/11/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

280

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

09/11/26 AJ

PR 09-11-20



# Picklist Print

October 30, 2009 9:57:09 AM

Page 1

Work Order ID: 53314

Parent Item: D212-664-107RevA

Parent Item Name: Crosstube Low Standard Fwd

Comments:

Start Date: 30/10/2009

Required Date: 16/11/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D212-664- 107TRNRevA		Manufactured	No			140	Each	6.0000	1.0000			



Crosstube Turning Detail



B-53113

MB 09-11-03

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
LG	6	
50700	1	
50701	1	
50705	1	
50706	1	
53113	1	
53115	1	

MB 09-11-03

D3659-1RevB

Manufactured No



CUFF

220

Each

22.0000

2.0000



<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	17	
50691	15	
51163	2	
Main Warehouse		
ST477	5	
52598	5	

9-11-04



# Picklist Print

October 30, 2009 9:57:09 AM

Work Order ID: 53314



Parent Item: D212-664-107RevA



Parent Item Name: Crosstube Low Standard Fwd

Start Date: 30/10/2009

Required Date: 16/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
CR3212-406  CHERRY RIVET		Purchased	No			240	Each	1,706.000	44.0000			

Warehouse  
Location

Loc Qty

Loc Code

Main Warehouse

ST

1706

B112314

ml 09 11 16

107534

6

112492

200

112612

500

112724

200

112794

800

D3595-063-450RevA

Manufactured

No

240

Each

136.0278

4.0000



RUBBER CUSHION

Warehouse  
Location

Loc Qty

Loc Code

Main Warehouse

LG

131.0589474

50953

23.0589474

52447

108

ml 09 11 17

Main Warehouse

ST

4.9689

38959

2

43210

2.59

46465

0.3789

# Picklist Print

October 30, 2009 9:57:09 AM

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Parent Item: D212-664-107RevA

Parent Item Name: Crosstube Low Standard Fwd


Comments:

Start Date: 30/10/2009

Required Date: 16/11/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21920-25 		Purchased	No			240	Each	164.0000	4.0000			
Clamp(per MIL-DTL-8783C)												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

164

107456

2

108111

3

108975

17

109181

48

109644

10

111282

4

111429

5

112495

50

112919

25

ml 09 11 17

D2893-1RevB

Manufactured

No

240

Each

36.0000

2.0000



2.75 Support

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

36

25657

6

47109

10

47637

20

ml 09 11 17

# Picklist Print

Page 4

October 30, 2009 9:57:09 AM

Work Order ID: 53314

Parent Item: D212-664-107RevA

Parent Item Name: Crosstube Low Standard Fwd


Comments:

Start Date: 30/10/2009

Required Date: 16/11/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D3428-1RevA  Placard		Manufactured	No			260	Each	21.0000	1.0000			

9/11/18 SP

Warehouse  
Location

Loc Qty

Loc Code

Main Warehouse

ST096

21

50790

21

AN6-35A

Purchased

No

260

Each

82.0000

4.0000

4x50

9/11/18

SP

Warehouse  
Location

Loc Qty

Loc Code

Main Warehouse

ST

82

112314

62

112805

20

AN6-36A

Purchased

No

260

Each

97.0000

4.0000

4x50

9/11/18

SP

Warehouse  
Location

Loc Qty

Loc Code

Main Warehouse

ST

97

109632

1

110382

2

112314

94

4x50

October 30, 2009 9:57:09 AM

Shop Packet Print

Page 4

# Picklist Print

October 30, 2009 9:57:09 AM

Work Order ID: 53314



Parent Item: D212-664-107RevA



Parent Item Name: Crosstube Low Standard Fwd

Start Date: 30/10/2009

Required Date: 16/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21042L6  Nut		Purchased	No			260	Each	623.0000	6.0000		9/11/18	Self

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

623

105077

22

110002

5

111548

8

111578

400

112492

188

AN960JD616

Purchased

No



Washer

260

Each

798.0000

18.0000



6x 54

9/11/18

SO

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

798

112314

298

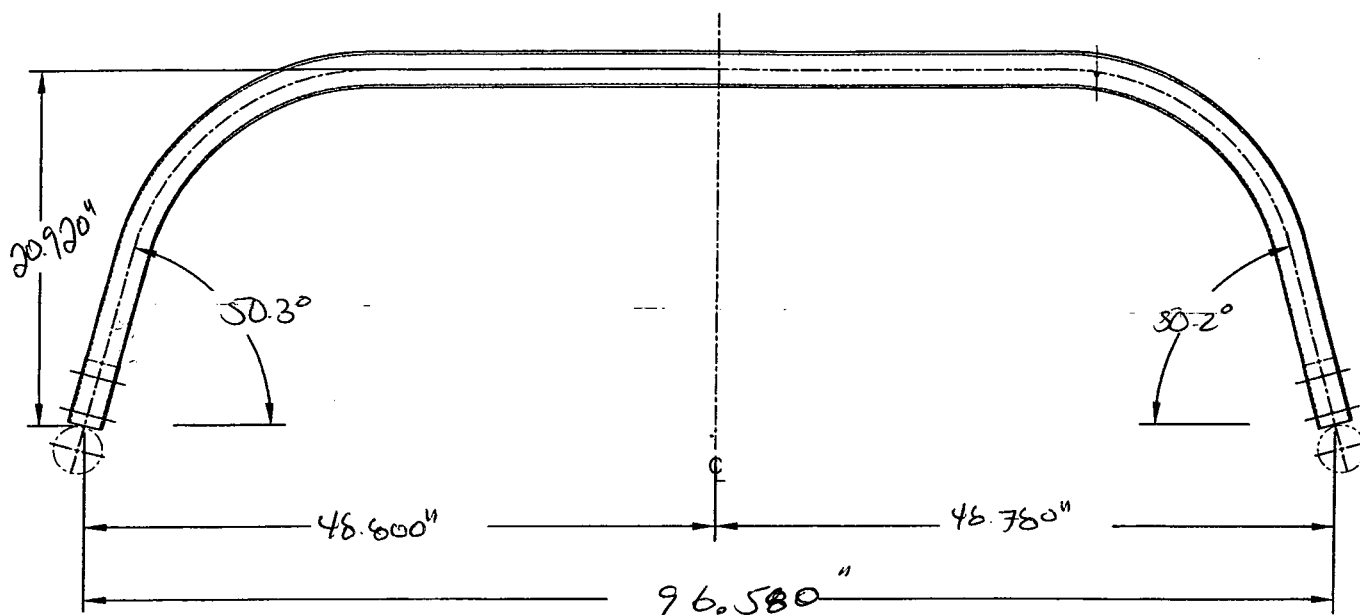
112828

500

18x 50

<b>DART AEROSPACE LTD</b>	<b>Work Order:</b>	53314
<b>Description:</b> Crosstube Low Fwd (205/212/412)	<b>Part Number:</b>	D212-664-107
<b>Inspection Dwg:</b> D212-664-147 <b>Rev:</b> A		<b>Page 1 of 1</b>

Required Dimension	Min	Max
Height	20.79	21.05
1/2 Span	48.55	48.81
Angle	49	52
Total Span	97.1	97.62



Comments

QC15 Inspection	S
Date	02/11/03

Rev	Date	Change	Revised by	Approved
A	08.02.29	New Issue	KJ/JM	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng/ Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**PARTS LIST:**

Qty	Part Number	Description
X	D212-664-147	CROSSTUBE ASSEMBLY (205/212/412 LOW FWD)
1	D6019-128	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
2	D3659-1	CUFF
4	MS21920-25	CLAMP (OR MS21920-26)
44	CR3212-4-06	RIVET (OR M7885/3-4-06)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

**GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6019-128  
FINISHED LENGTH = 126.53±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) PART IS SYMMETRIC ABOUT CENTERLINE
- 6) WHEN MACHINING TAPER, RUN-OFF PART AT STOCK. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 7) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 8) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 9) SCRIBE DART PART NUMBER AND BATCH NUMBER ON INNER SURFACE OF TUBE WITH A VIBRATING STYLUS.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 14) INSTALL D3659-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 15) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

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WITHOUT NOTICE  
WORK ORDER

NO. 53314

*10/09-10-30*

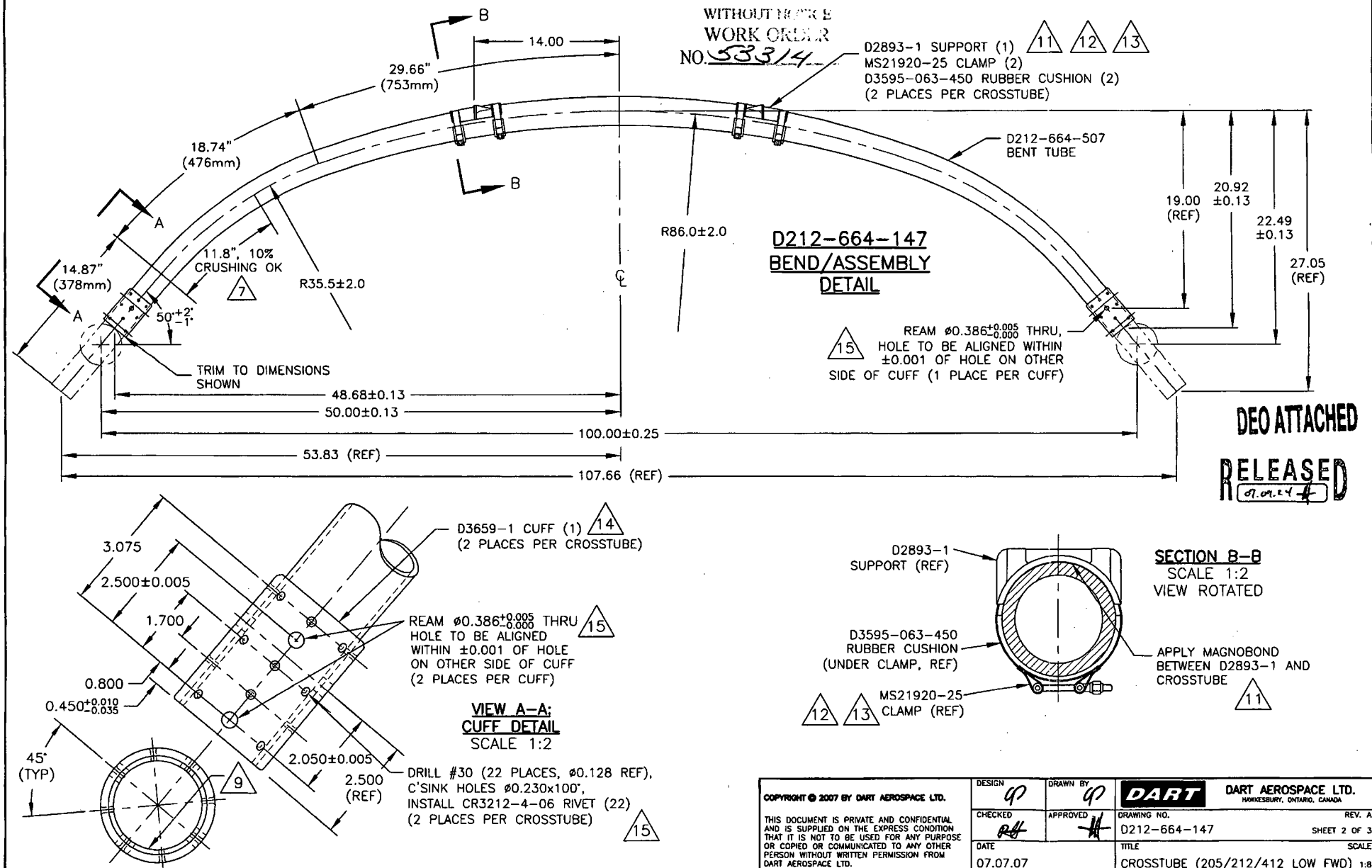
DEO ATTACHED

RELEASED  
07.09.24

A		07.07.07	NEW ISSUE
DESIGN	<i>qp</i>	DRAWN BY	<i>qp</i>
CHECKED	<i>qp</i>	APPROVED	<i>[Signature]</i>
DATE		07.07.07	
DART AEROSPACE LTD.		DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA	
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		SHEET 1 OF 3	
		SCALE CROSSTUBE (205/212/412 LOW FWD) NTS	

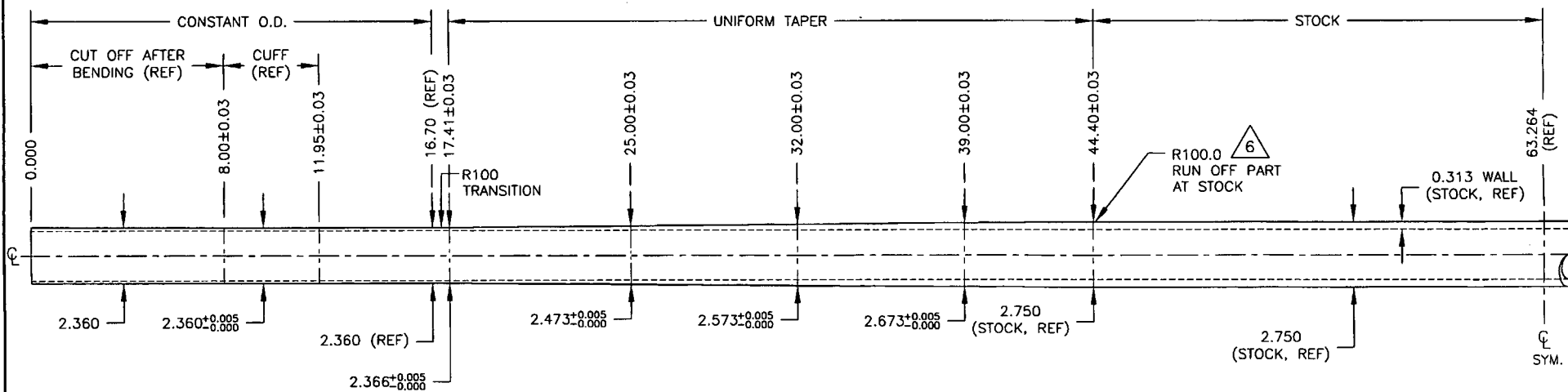


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DATE		07.07.07		DRAWING NO.	REV. A
				D212-664-147	SHEET 2 OF 3
				TITLE	SCALE
				CROSSTUBE (205/212/412 LOW FWD)	1:8



# D212-664-147 MACHINING DETAIL

RELEASED  
97.07.24

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WORK ORDER  
NO. 53314

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THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED <i>97</i>	APPROVED <i>97</i>		
DATE 07.07.07		DRAWING NO. D212-664-147		SHEET 3 OF 3	
		TITLE CROSSTUBE (205/212/412 LOW FWD)		SCALE 1:4	

DRAWING NO. D212-664-147	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D212-664-147-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>JD</i>	CHECKED <i>PH</i>	MFG. APPR. <i>E</i>	APPROVED <i>MD</i>		DE APPR. <i>PH</i>		
DATE 09.05.01	DATE 09.06.15	DATE 09.06.15	DATE 09/06/16		DATE 09/06/16		

**CHANGE:**

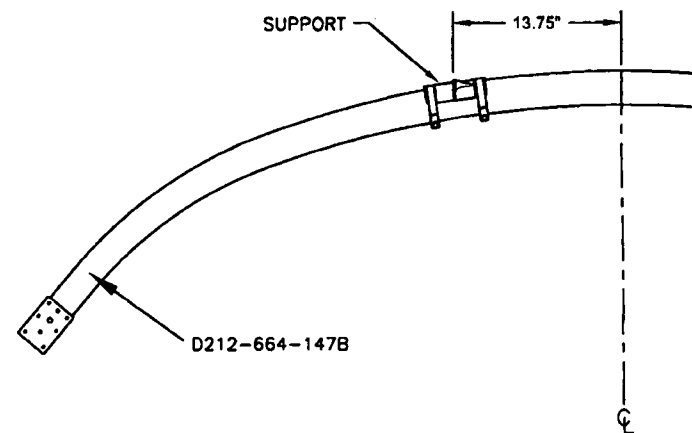
ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

Part Number	Description
D212-664-147B	CROSSTUBE ASSEMBLY (214 LOW FWD)

THE D212-664-147B CROSSTUBE HAS THE SAME PARTS LIST AS THE D212-664-147 CROSSTUBE. HOWEVER, INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D212-664-147 CROSSTUBE.

**RELEASED**  
09/06/22/14

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ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 53314



**FIGURE 1 - SUPPORT INSTALLATION**

## 5.2 STANDARD GEAR CROSSTUBES

Item	-107	-207	-209	Part Number	Description
	X			D212-664-107	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
		X		D212-664-207	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
			X	D412-664-209	CROSSTUBE INSTALLATION, 412 STANDARD AFT
6	1			D212-664-147	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD FWD
7		1		D212-664-247	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K STANDARD AFT
8			1	D412-664-249	CROSSTUBE ASSEMBLY, 412 STANDARD AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
31			2	* D2856-600-1009	ABRASION STRIP
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21042-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
45	2			* D3659-1	CUFF
46		2	2	* D3660-1	CUFF
47	44	44		* CR3212-4-06	RIVET (M7885/3-4-06)
48			44	* CR3212-4-07	RIVET (M7885/3-4-07)
50	1	1		D3428-1	PLACARD

\*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-147/-247 OR D412-664-249 ASSEMBLIES ABOVE  
 NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AA SKIDTUBES.

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Revision: F  
 Date: 08.09.05



## LIQUID PENETRANT TEST REPORT

P-15307

PAGE 1 of 1

## CLIENT

DATE

## ATTENTION

ACUREN JOB NO.

## ADDRESS

FORM NO.

## PROJECT

WORK LOCATION

## ITEM(S) EXAMINED

ACCEPTANCE STD.

## JOB DESCRIPTION

PROCEDURE NO. LIT-002 REV.D/DATE

TECHNOLOG NO. LIT-002 REV.D/DATE

## PART NO.

WATERMARK/DATE Acquisition THICKNESS

## SCOPE

WET FINGERCEST L-001A. PENETRANT INSPEC TRAIL  
COILED OUT 100% EXTERNAL

## TEST DETAILS

METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVAL	<input type="checkbox"/> POST EMULSIFIER
FAMILY BRAND	Microflex		BLACK LIGHT SN/1059	BOOTHOT > 1000 μ W/LF	<input type="checkbox"/> AMBIENT < 2 to
PENETRANT REMOVAL	100%		INSPEC DRY TIME	<input type="checkbox"/> PUSHLIGHT	<input type="checkbox"/> THROUGH LIGHT
DEVELOPER	SD 52		MINIMUM DWELL TIME	10 MIN	OTHER
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY		CA. DUE DATE
TEST SURFACE			<input checked="" type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED			
	<input type="checkbox"/> < -4°C/20°F	<input type="checkbox"/> -4°C/20°F TO 10°C/60°F			

## RESULTS-

( ☐ METRIC ☐ IMPERIAL )

ITEM	COMMENTS	ACCEPT	REJECT
1. CROSS TUBE W.O. 51935		/	
1. CROSS TUBE W.O. 51936		/	
1. CROSS TUBE W.O. 53314		/	
1. CROSS TUBE W.O. 53315		/	
1. CROSS TUBE W.O. 52930		/	
1. CROSS TUBE W.O. 52931		/	
1. CROSS TUBE W.O. 52859		/	
1. CROSS TUBE W.O. 52860		/	
1. CROSS TUBE W.O. 52932		/	
1. CROSS TUBE W.O. 52933		/	

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## SIGNATURES

## CLIENT REPRESENTATIVE

In Title

Signature

## TECHNICIAN (SIGNATURE)

## NAME (PRINT)

Signature

CQSB LVL

SNT LVL

CQSB REC. NO.

SNT REC. NO.

CQSB REC. NO.

SNT REC. NO.

CQSB REC. NO.

SNT REC. NO.

CQSB REC. NO.

SNT REC. NO.

CQSB REC. NO.

SNT REC. NO.

CQSB REC. NO.

SNT REC. NO.

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